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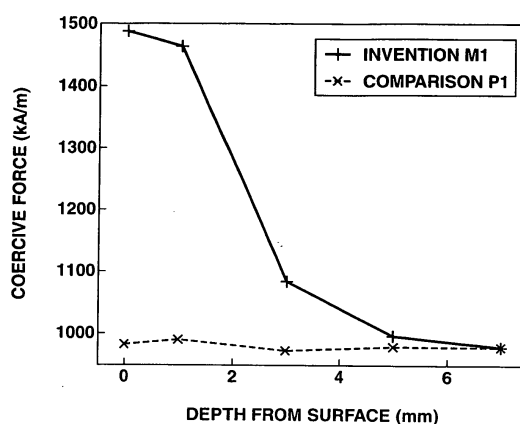
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(54) **Functionally graded rare earth permanent magnet**

(57) A functionally graded rare earth permanent magnet is in the form of a sintered magnet body having a composition  $R^1_a R^2_b T_c A_d F_e O_f M_g$  wherein the concentration of  $R^2/(R^1+R^2)$  contained in grain boundaries surrounding primary phase grains of  $(R^1, R^2)_2 T_{14} A$  tetragonal system within the sintered magnet body is on the average higher than the concentration of  $R^2/(R^1+R^2)$  contained in the primary phase grains,  $R^2$  is distributed such that its concentration increases on the average from the center toward the surface of the magnet body, the oxyfluoride of  $(R^1, R^2)$  is present at grain boundaries in a grain boundary region that extends from the magnet body surface to a depth of at least 20  $\mu\text{m}$ , and the magnet body includes a surface layer having a higher coercive force than in the interior. The invention provides permanent magnets having improved heat resistance.

**FIG.1**





## EUROPEAN SEARCH REPORT

Application Number  
EP 10 00 9418

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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 16 March 2011	Examiner Straub, Florian
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**ANNEX TO THE EUROPEAN SEARCH REPORT  
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